ABSTRACT

Methods which determine network performance by determining not only the transit delay between nodes in a network but also the variance, or jitter, of such transit delays. A common node, usually a network management computer (NMC), sends out a signal to a first node of interest and measures the time before it receives an acknowledgment from the first node. The NMC then sends out a similar signal to a second node of interest and similarly measures the time required to receive an acknowledgment. Based on these two measurements, the transit delay between the first and second nodes can be calculated if the first node lies on the path between the NMC and the second node or vice versa. For a multiple node communications path, the total transit delay between any two nodes is the sum total of the transit delays between adjacent nodes lying on the path. In the case of meshed networks, where a path to a node may be ambiguous, additional measurement nodes strategically positioned in the network can be used such a way that the transit delay between any adjacent pair of nodes can be calculated unambiguously from at least one of these measurement nodes, i.e., the portion of the network being measured will be reduced to a hierarchical one with respect to at least one of the measurement nodes.